

Emergency Aid and Safety

Fumigation Exposure

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Emergency Action—DO NOT HESITATE

You

If exposed to fumigant, immediately move well away from the contaminated area. Notify your coworkers of the danger and that you have been exposed. Onset of symptoms may be delayed in some fumigants. Promptly notify your supervisor of all details.

If liquid fumigants have spilled on skin or clothing—immediately remove contaminated clothing and gently wash the skin with large quantities of water and soap. Do not use abrasive cloths or brushes. Be sure to include areas under finger and toenails. Contaminated skin may also be rinsed with rubbing alcohol.

Contaminated clothing must not be used again until thoroughly aired, washed, and dried. Dangerous vapors will be produced by the liquid fumigant as it evaporates from skin or clothing.

Coworker

If chemical intoxication due to exposure is at any time suspected:

1. Immediately move the victim out of the area to fresh air.



Do not enter contaminated areas without a proper respirator, even to effect rescue.

2. If there is evidence of respiratory weakness, give artificial respiration. Oxygen can be beneficial. **Artificial respiration takes precedence over all other first aid.** (see next page.)
3. Call a physician when symptoms suggest immediate care is needed.
4. Keep patient warm, comfortable, and as quiet as possible.
5. If convulsions occur, use gentle restraint and prevent injury.

First Aid With Rescue Breathing

If you think a person has stopped breathing, don't delay. Give first aid immediately. Ask someone else to get medical help.

1. Is the person breathing?



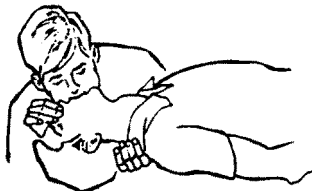
To find out if the person is breathing, place him flat on his back and put your ear close to his mouth. If he is breathing, you will feel his breath and see his chest rise and fall.

2. Open the airway.



If the person has stopped breathing, lift up his neck with one hand and push down on his forehead with the other. This opens the airway and the person may start to breathe. If he doesn't, begin RESCUE BREATHING at once.

3. Rescue Breathing. Keep one hand under the person's neck so that his head is tilted backward with his chin up. Pinch his nostrils shut with the fingers of your other hand.



Take a deep breath and cover his mouth completely with yours. Blow air into his mouth. When his chest moves up, take your mouth away and let his chest go down by itself.

Repeat this procedure every 5 seconds. Do not stop until the person starts breathing or medical help comes.

Signs, Symptoms, Emergency Aid, and Medical Treatment for Poisoning by Some Fumigants Used by APHIS

Chloropicrin

Signs and Symptoms

Powerful irritant; affects all body surfaces, lacrimation, vomiting, bronchitis, pulmonary edema. Inhalation causes anemia, weak and irregular heart beat, recurrent asthmatic attacks.

Emergency Aid

Artificial respiration. Oxygen if available.

Medical Treatment

Symptomatic—oxygen. Sample analysis might be helpful in diagnosis and prognosis.

Methyl Bromide

Signs and Symptoms

Central nervous system depression, nausea, fever, dizziness, confusion, delirium, staggering, visual disturbances, abdominal pain, mania, tremors, pulmonary edema, convulsions, coma. **Onset may be delayed 4-12 hours.** On skin, severe irritations, skin blisters, dermatitis.

Emergency Aid

Artificial respiration. Oxygen if available. No mechanical resuscitation. If on skin, wash 15 minutes with large amounts of water. If on clothing, vapors may be released in toxic quantities.

Medical Treatment

Symptomatic—Artificial respiration, oxygen without mechanical resuscitator. Analysis of breath and blood may help in diagnosis and prognosis. Nausea, accompanied by vomiting. Give intravenous, glucose-bearing vehicles.

Phosphine (From Aluminum Phosphide)

Signs and Symptoms

2,000 ppm in air, rapidly fatal. Chest pain, headache, dyspnea, restlessness, vomiting, diarrhea, convulsions, coma, paralysis, low blood pressure, slow heart, death may be delayed several days.

Emergency Aid

Artificial respiration. Oxygen if available.

Medical Treatment

Symptomatic—oxygen; control convulsions with sedatives, restore fluid balance with glucose and saline.

Sulfuryl Fluoride

Signs and Symptoms

Central nervous system depression, excitation may follow.

Emergency Aid Place patient in fresh air, face downward, with head slightly below level of lungs. Keep warm. If breathing stops, give artificial respiration.

Medical Treatment First symptoms expected are those of respiratory irritation and central nervous system depression. Treat symptomatically.

Fumigant Safety

Specific precautions to be followed when using each of the fumigants are listed on the label and labelling. However, the following general safety procedures can be applied to most applications.

1. Hazards vary with:
 - A. Relative toxicity of each fumigant
 - B. Dosage rate (concentration)
 - C. Size of enclosure
 - D. Tightness of enclosure
 - E. Physical condition of employee (allergies, heart condition, respiratory ailments, etc.)
2. It is important to:
 - A. Know the characteristics of the fumigants you are working with
 - B. Have the proper equipment to carry out the fumigation
 - C. Be familiar with the emergency aid required should an accident occur
3. Wear protective equipment if there is a chance of exposure to highly toxic liquid fumigants.
 - A. Gloves should be impermeable to liquid fumigant being used
 - B. Rubber aprons should be long enough to prevent legs from being exposed
 - C. A face shield or respirator should be worn when liquids are being transferred and there is a possibility of splattering
4. Dispensers for measuring the amount of fumigant should have shatter-proof shields.
5. The area surrounding the fumigation enclosure should be well-aerated. Operators should be located upwind from treatment.
6. If it is necessary to stay in the area of a treatment, the air should be monitored to determine if harmful levels of the fumigant are present.

- 7.** Under no circumstances should an inspector be exposed to concentrations above minimum safe standards. A self-contained breathing apparatus (SCBA) should always be readily available should an emergency develop.
- 8.** A SCBA is required at all fumigation sites. Use of such respirators is mandatory for PPQ Officers when within 30 feet of tarpaulin fumigation or whenever TLV is exceeded (5 ppm for methyl bromide).. You must have a medical evaluation and clearance to use SCBA equipment. The evaluation must be performed by a physician or licensed health care professional. Also, you must follow OSHA standards for respirator use. (see APHIS Safety and Health Manual, Chapter 11, Section 3)
- 9.** Wash hands and face after leaving area where toxic amounts of fumigants are being used.
- 10.** Do not eat, drink, smoke, or carry tobacco in areas where fumigants are being used.
- 11.** A first-aid kit equipped with the proper materials should be readily available at the treatment site.
- 12.** Persons working regularly with toxic fumigants should have blood tests and physical examinations if warranted by supervisor's consultation with local medical authorities.
- 13.** Have telephone numbers of local hospitals, doctors, and poison control centers prominently displayed.
- 14.** Learn to recognize the signs and symptoms of fumigant poisoning. Training should be given to each inspector.
- 15.** Supervisors should be aware of signs of fatigue. Risk of accidents increases in tired employees.

Guidelines for Using Fumigants Safely

Emergency-Rescue and respirator¹ for each of the fumigants is a SCBA.

TABLE 7-1-1: Fumigant Monitoring Devices and Sources of Exposure

Fumigant/Routes of Entry	Detector Unit or Monitoring Device	Sources of Exposure
Methyl bromide: Inhalation, skin	Gas detector tubes, Electronic detector, Thermal Conductivity Unit	Cylinder connection, leaks in tarpaulin, applicators, aeration
Phosphine (from aluminum phosphide): Inhalation	Gas detector tubes, Electronic detector	Application of pellets, leakage from enclosure, aeration
Sulfuryl fluoride (Vikane®): Inhalation	Thermal Conductivity Unit, Electronic detector	Applicator and cylinder connections, leakage from enclosure, aeration

¹ For use outside of enclosure only.